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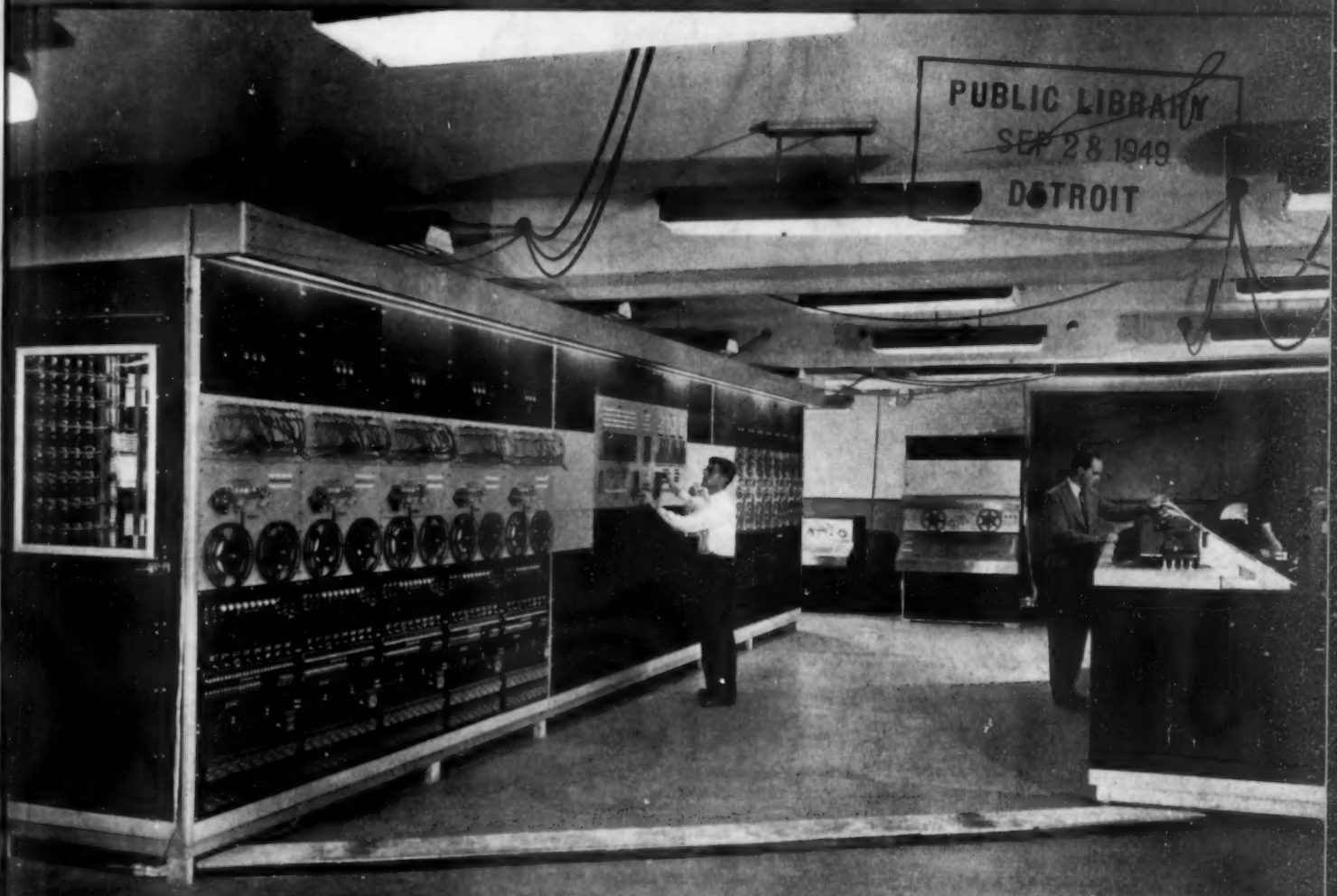
SEPTEMBER 24, 1949

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Memory System

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ASTRONOMY

Total Moon Eclipse Coming

Second lunar eclipse this year, it will be visible both in North and South America. Another event of the month will be the partial eclipse of the sun.

By JAMES STOKLEY

➤ MOST interesting event of the astronomical calender for October comes on the evening of Thursday, Oct. 6. Then, for the second time this year, the moon is totally eclipsed as it enters the earth's shadow. And again the eclipse will be visible generally over North and South America. For an hour and 14 minutes (from 9:19 to 10:33 p. m., EST) our planet will obstruct the usual supply of light on the moon, putting it in total eclipse. Then it will take another hour and 15 minutes for the moon to emerge from the shadow.

This is not the only eclipse that October brings, but the other, on Oct. 21, is not of any great importance, even though it is the sun this time that will be hidden partially as the moon passes in front. First of all, it is visible only from New Zealand, parts of Australia and New Guinea and Antarctica. From the point where the eclipse is greatest, near the coast of the Antarctic continent, only 96% of the solar diameter is covered. Thus, there will be none of the features that induce astronomers to travel great distances to see a total eclipse when the sun is completely hidden.

Aside from the lunar eclipse, the evening skies of October bring us the characteristic constellations of autumn. The only planet easily seen in the evening is Jupiter, whose position in the figure of Capricornus, the sea-goat, is shown on the accompanying maps. These depict the skies as they appear at about 10:00 p. m., your own kind of standard time, Oct. 1, an hour earlier at the middle of the month, and about 8:00 p. m. at the end. Since Jupiter is very bright (of astronomical magnitude minus 1.9) it is easily found as it shines in the southwest.

Now an evening star, and considerably brighter than Jupiter, is the planet Venus, which is in the constellation of Scorpius, the scorpion. Since it sets about two hours after the sun, it is not shown on the maps. The other planets of October are seen in the morning sky before sunrise. Mars, in Leo, the lion, comes up in the east about an hour after midnight. Saturn, in the same constellation, rises a little later. Mercury will be seen low in the east just before sunrise about Oct. 19, when it is farthest west of the sun.

Among the evening stars Vega, in Lyra, the lyre, is brightest, and shines in the western sky, as shown on the maps. Above it is Deneb, in the figure of Cygnus, the swan, and nearby to the left is Altair, in Aquila, the eagle. These are all of the first magnitude, as also is Capella, in Auriga, the charioteer, shown low in the northeast. Nearby, to the right, is Taurus, the bull, with brilliant Aldebaran. Still another first magnitude star is seen low in the south, Fomalhaut, in Pisces Austrinus, the southern fish.

A characteristic figure seen high in the south is the "great square of Pegasus," the winged horse. These four stars are easily identified, the one in the upper left being part of Andromeda, the chained princess. Below and to the left are the fishes, Pisces; while still lower and to the right, under the row of stars beginning with Markab that forms the horse's head, is Aquarius the water carrier. Below Pisces is Cetus, the whale, making this part of the sky, all in all, rather a watery region!

Although a total moon eclipse is not as spectacular as the corresponding condition of the sun, it does have many points of interest, and has the great advantage of wide visibility. A total eclipse of the sun actually occurs more frequently than one of the moon but is visible only along a path perhaps 150 miles wide and several thousand miles in length, where the core of the moon's shadow hits the earth. The last time such a "path of totality" crossed any part of the United States was in July, 1945, and the next will not come until October, 1959. In contrast, an eclipse of the moon, when it does occur, is visible over more than half the earth. Thus, from the United States, we have two in 1949, and another next year, on Sept. 26.

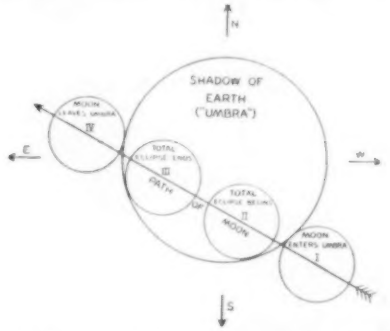
Like any solid object, the earth casts a shadow into space, on the side away from the sun. This shadow is in two parts. There is a deep, inner core, called the umbra, from which the sun is completely hidden by our globe. But outside this is a larger area, the penumbra ("almost-shadow") where the earth partially hides the sun.

Whenever the moon is full, it is opposite the sun in direction from the earth. Since the plane in which the moon encircles the earth does not coincide with that in which the earth goes about the sun, however, usually the full moon misses our shadow, passing either to its north or south. Twice each lunar month, in which the moon goes through its cycle of phases, it crosses the plane of the earth's orbit, at points called nodes. And when full moon happens to come at or near a node, the moon goes into the earth's shadow and an eclipse occurs. This month the moon is both at a node and at full phase on the evening of Oct. 6, and so we have an eclipse.

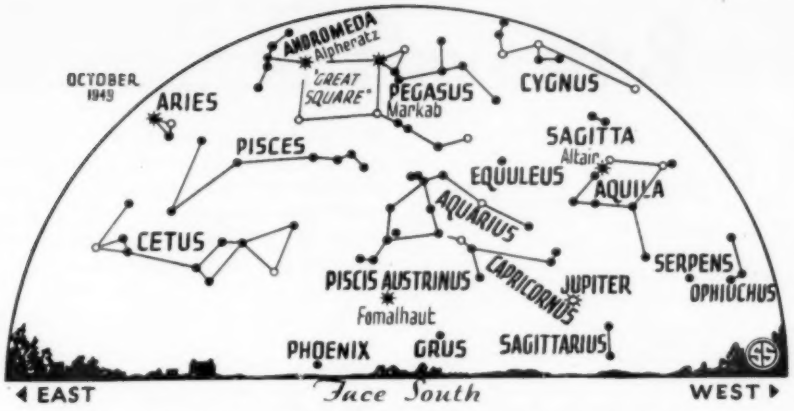
The following table gives the times of the principal features of this event:

		EST
Moon enters penumbra	Oct. 6	6:50 p. m.
Moon enters umbra		8:05 p m.
Moon completely eclipsed		9:19 p. m.
Middle of eclipse		9:56 p. m.
Total eclipse ends		10:33 p. m.
Moon leaves umbra		11:48 p. m.
Moon leaves penumbra	Oct. 7	1:03 a. m.

Nothing will be visible at 6:50 p. m. because then only a minute proportion of the sunlight will be cut off from the moon. But an hour later the northeastern edge of the moon will begin to pale. At 8:05 this edge will make contact with the earth's shadow, as shown in I in the diagram. It



should be noted, by the way, that in this diagram north is the direction toward the



☼ ✱ ○ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

pole star. Throughout the United States and Canada, the eclipse will occur in the evening, earlier the farther west you are. To get the moon oriented, as it will appear in the sky, hold the diagram with the arrow labeled "north" pointing upwards and to the left. Thus, it will be the left hand edge of the moon, as you see it in the sky, where the shadow will first appear.

During the hour and 14 minutes that the moon takes in entering the umbra, the curved edge of the terrestrial shadow will be seen on its face. This, incidentally, is an unassailable argument for the earth's roundness, for it is always curved the same way, and only a sphere invariably casts a round shadow.

While the moon is in total eclipse, it will not be likely to vanish completely, unless conditions are most unusual. Instead it will shine with a ruddy light, bent into the shadow by the prismatic action of the earth's atmosphere. While the sunlight thus passes through the air, its blue rays are scattered to give the characteristic daytime blue sky and the light that remains is predominantly red.

During the eclipse there is a rapid cooling of the lunar surface. Before it starts astronomical instruments would show it to be around 275 degrees Fahrenheit, but during the eclipse this drops to about 175 degrees below zero Fahrenheit, some 65 degrees colder than dry ice. This quick cooling is due to the fact that, unlike the earth, the moon has no atmosphere to ameliorate conditions, and also that it is covered with some sort of material, perhaps like pumice, which cannot hold much heat.

At the end of the total eclipse, shown at III on the diagram, the curved edge of the umbra again appears on the moon's face, and from III to IV it creeps across the disk, which gradually becomes fully illuminated. With its passage out of the penumbra, full sunlight once more is shining on the moon, and again it looks like an ordinary full moon to which nothing has happened.

Time Table for October

Oct.	EST	
3	3:00 p. m.	Mercury between sun and earth
6	9:52 p. m.	Full moon and total eclipse of moon
7	noon	Moon farthest, distance 252,500 miles
14	11:06 p. m.	Moon in last quarter
17	7:44 a. m.	Moon passes Mars
18	7:02 p. m.	Moon passes Saturn
19	4:00 a. m.	Mercury farthest east of sun
20	10:48 a. m.	Moon passes Mercury
21	10:00 a. m.	Moon nearest, distance 222,000 miles
	4:23 p. m.	New moon
24	10:58 p. m.	Moon passes Venus
27	3:32 p. m.	Moon passes Jupiter
28	12:04 p. m.	Moon in first quarter

Subtract one hour for CST, two hours for MST, and three for PST.

Science News Letter, September 24, 1949

ENGINEERING

Canada's Power-Use High

▶ CANADA, with less than one-tenth the population of the United States, has developed so far 11,000,000 of her 52,000,000 horsepower hydro-electric potential, as compared to the development of 23,000,000 horsepower of a potential 80,000,000 in her neighbor to the south, the American Institute of Chemical Engineers was told in Montreal, Canada, by Dr. Huet Massue of that city, engineer of the Shawinigan Water and Power Company.

Canada's present capacity places the nation second only to the United States in hydro-electric production, he said, adding that the investment required per horsepower in Canada is only about one-half the amount required in the United States.

Within the province of Quebec alone, the hydro installation is about one and two-thirds horsepower per person, he continued. This is almost double that in any entire country. And the average selling-price per kilowatt hour, he added, is lower than in any other region of North America, or probably in the world. In addition to the 6,000,000 horsepower of hydro-electric energy so far developed in the province, 11,000,000 horsepower remains to be harnessed.

Western Canada is within sight of being able to produce enough oil to meet one-third of Canada's petroleum needs, the engineers were told by M. L. Haider of Imperial Limited. Alberta's crude oil reserves are estimated to be in the neighborhood of 1,000,000,000 barrels, and the fields will be able to produce some 100,000 barrels a day by the end of this year.

Alberta has also great quantities of oil-bearing bituminous sands. In one of the richest areas studied by the Canadian National Research Council, according to W. S. Peterson and Dr. P. E. Gishler of that organization, a bitumen content of 200,000,000 barrels per square mile has been estimated. Processes under study to produce oil from the Alberta sands were described by them. Direct distillation is under a pilot plant test.

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PUBLIC HEALTH

Reasons for Polio Rise

➤ WE ARE having more infantile paralysis because we have more children under 15 years of age. The serious housing shortage and the fact that good transportation now brings country and city people together are two more likely reasons for the increase in the disease during the past 10 years, statisticians of the Metropolitan Life Insurance Company in New York declare.

The number of reported cases of infantile paralysis has been higher in the past 10 years than in any previous comparable period, they report.

In about the same period of time, since 1940, the population under age 15 has increased from 33,000,000 to nearly 40,000,000, or more than 20%.

The housing shortage would play a part because of the crowded living conditions which might favor the spread of the disease. Since people can and do travel more, those living in rural areas are not so isolated as formerly and that may explain the increasing frequency of infantile paralysis in areas that formerly had little of the disease.

Improved diagnosis and reporting of cases probably accounts for some of the increase, the statisticians point out. They term this increase an "apparent" one while the other conditions would lead to a real increase in cases.

Deaths from infantile paralysis have been going down, even though number of reported cases has increased. Last year, when the number of cases was greater than any year since 1916, the death rate among children insured in the company's industrial department was only one-fifteenth of the all time high of 1916 and less than one-half the 1931 rate.

The long-term decline in the death rate resulted chiefly from the decline in mortality at ages under 10, especially among girls. At ages over 10, especially among boys, there is some sign of a rise in the mortality. The reason for this is not clear.

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VETERINARY MEDICINE

Bigger Pigs on Less Feed Promise of Gland Treatment

➤ A GLAND treatment that makes pigs into bigger porkers on less feed has been discovered by Dr. R. Braude of Reading, England.

On this treatment the pigs in Dr. Braude's experiments used one-third of a pound less feed for every pound of live weight gain, amounting to a 10% saving in feed. The new fattening process increased the size and weight of the animals but the gain was apparently in lean meat, since carcasses of treated animals were not as fat as those of untreated litter mates.

A synthetic female sex hormone, called stilbestrol, and iodinated casein were used in the first experiments. Dr. Braude is now substituting synthetic thyroxin, iodine-containing thyroid gland chemical, for the iodinated casein. He expects to try the new fattening process on a commercial scale soon.

Pork from these treated pigs will be fit for human consumption, Dr. Braude reported on the basis of experiments by Dr. Peter Bishop of Guy's Hospital, London. Dr. Bishop fed pork from the exprimental pigs to volunteer women patients without adverse effects.

Science News Letter, September 24, 1949

NUCLEAR PHYSICS-PSYCHOLOGY

Men More Hopeful than Women about Atom Energy

➤ MEN are more hopeful than women about the development of atomic energy, Dr. Lillian Wald Kay, of New York University, found from interviews of 6,500 adults in New York City and Cincinnati, Ohio, who attended an exhibit of Man and the Atom.

Women are less well informed about applications of atomic energy than men but are more ready to ask for information about all uses, including weapons.

Among those who are informed about possible peacetime uses of atomic energy, men and women differ in their principal interests. Men are concerned about the applications to power. Women are interested in medical uses.

Dr. Kay reported her findings at the meeting of the American Psychological Association in Denver, Colo.

Science News Letter, September 24, 1949

GEOLOGY

Age of Atlantic Ocean Is Half Billion Years

➤ THE depths of the Atlantic Ocean have been very much as they are today for 500,000,000 years, about a quarter of the known age of the earth.

The supposed youth of the Atlantic basin, generally placed at only 70,000,000 years, was exploded by underwater depth charge explosions set off by the Albatross ocean bottom exploring expedition.

Prof. Hans Pettersson, Swedish oceanographer who led the exploration, reported the new age determination to the British Association for the Advancement of Science meeting at Newcastle-Upon-Tyne, England.

Soundings of the sea were made by echoes from the explosions. Two echoes were obtained, one from the top of the layer of sediment and the other from underlying bedrock. The sediment depth was shown by this method to be 12,000 feet. The rate at which sediments on the floor of the ocean accumulate now is about a quarter of an inch (seven millimeters) per 1,000 years. Simple calculation gives the age as about 500,000,000 years.

Science News Letter, September 24, 1949

Words in Science— SPEED-ACCELERATION

➤ SPEED is the rate of travel of an object. It is expressed in miles per hour or feet per second.

Velocity is not just a hard way of saying speed; it means speed in a given direction. Velocity in one direction is not at all the same as velocity in another direction even though the speed may be the same.

Acceleration is the rate of increase in velocity. A car that has a quick pick-up accelerates well. Acceleration is usually expressed in feet per second per second. The repetition of "per second" is not a misprint because acceleration means change in velocity. It is the increase in speed (feet per second) that occurs in each second.

Science News Letter, September 24, 1949

GENERAL SCIENCE

Servicemen Have Changed

➤ THE gray lady and the other Red Cross workers are the same as they were before the War, and the services they offer are the same, but the serviceman is different.

He is younger. About half a million of those who entered the service in 1948 are under 21 years old.

There are more of them. The armed forces in 1939 numbered just over a quarter of a million. Now one and two-thirds million men are under arms.

He may be located anywhere in the world. Our peacetime army before the war was located in posts within our own borders, within easy mail or travel distance from home and in constant communication with friends and families. Now the soldier may be in Europe or in Asia, thousands of miles from home where communication is difficult and slow.

Faces change. The armed forces now have a rapid turnover in personnel. About three-quarters of a million entered the services in 1948 while nearly half a million left.

The new soldier is a civilian. The peacetime army man before the war was a regular; he was a professional soldier who looked forward to a career of military service. In the main, the young man in the armed forces today is looking forward to only a temporary stay in service. He expects to go back to his community and establish himself there in business, industry or a profession.

This makes it more important than ever before to maintain the line between the soldier and his home community—a function of the Red Cross worker.

Before or during the war, the soldier took to the Red Cross worker his problems of a wife who needed money for an emergency in the home, a sick child who needed special care, an aged mother, destitute and critically ill.

Notwithstanding all that the military establishment does for the training and welfare of its personnel, today's young soldier needs contact with someone who can help solve his personal problems. His mother at home wants to be reassured when he fails to write to her.

Many think of Red Cross services in terms of canteens that serve coffee and sandwiches and a chocolate bar to men at the point of embarkation. But this pleasant contact is only a small part of what the Red Cross does for the service man or woman. The service to the Armed Forces is the largest single activity of the American Red Cross national organization. It includes: Consultation and guidance on personal or family problems; financial assistance in the form of loans or grants to enable a man to get home in case of death or other emergency in the family; communication between servicemen and their families and answering inquiries about the location and welfare of men who haven't been heard from at home (the Red Cross has its own telecommunication system which ties together every individual in the entire organization); information about legislation and how to obtain benefits; recreation; water safety training.

Science News Letter, September 24, 1949

ANTHROPOLOGY

Pueblos Forced Out by War and Not Nature

➤ THE mysterious abandonment of the Pubelo Indian villages, in the thirteenth century in the southwestern United States, was due to war, not drought or depletion of the forests, as previously thought.

Dr. Deric O'Bryan of the Sante Fe Laboratory of Anthropology, Sante Fe, N. Mex., has concluded that marauding tribes of other Indians, who were nomads, forced the settled Pueblos to leave, finally, the fortified villages which are now archaeological and tourist wonders.

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METEORCLOGY

Air Chemically Same 42 Miles Above Earth

➤ THE chemical composition of air 42 miles high is exactly the same as that near the earth scientists at the University of Durham, London, England, have found.

Using samples of air collected by V-2 rockets during two successful flights, Dr. K. F. Chackett, Prof. F. A. Paneth and E. J. Wilson analyzed the gas from 42 miles, or 70 kilometers, for argon, helium, and neon.

They found no detectible difference between air at ground-level and that in the stratosphere, they report to the journal, NATURE (July 23). For various problems in meteorology and physics, it is important to know the composition of the earth's atmosphere at all heights. Direct chemical analysis is the best method of obtaining this information.

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ENGINEERING

Water Fog Effective As Fire Extinguisher

➤ HIGH-PRESSURE water fog fire-extinguishing systems are effective in killing "spill fires" of gasoline on a concrete test slab, it has been determined at the Army Engineer and Development Laboratories at Fort Belvoir, Va., where recent tests have just been completed. High-pressure equipment was found to be four times as effective as low-pressure units.

Water fog, a relative new-comer to the fire-fighting field, is an improvement over the traditional water spray method, Army engineers state. Fog differs from spray in the more minute size of the droplets.

In these tests the superiority of high-pressure over low-pressure fog was established, with somewhat less notable but equally significant results, at low rates of discharge. Average extinguishment time at 15 gallons per minute was 26 seconds for 1,500 pounds pressure, and 52 seconds for 100 pounds pressure.

Using high-pressure nozzles especially constructed to deliver 35 gallons of fog per minute at 1,500 pounds per square inch pressure, fire fighters succeeded in extinguishing a series of 10 test fires in an average of nine seconds. Pressures this high, however, make handling the nozzle difficult. Subsequent tests using 500 to 1,000 pounds nozzle pressure gave average extinguishing time of 13 and 10 seconds, respectively.

Principal advantage of water fog in combating fire is that of water economy, the engineers assert. This is an important consideration in military fire-fighting equipment for use where water is scarce. Used against liquid fires, fog has the added advantage of not scattering the burning fuel.

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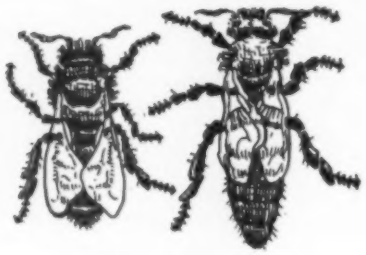
ENTOMOLOGY

NATURE RAMBLINGS by Frank Thone



Trail of the Bee

➤ HONEY is a mouth-watering word all over the world. Save for Eskimos and Tunguses and a few other remote tribes in forsaken regions so luckless as to be without bees, all human beings know it—and think of only one word in connection with it: "More, please!" And plenty of our sub-human animal kindred, from bears to flies, are no less fond of it than we ourselves.

Honey is commonly classified according to the flowers from which the bees have taken the nectar, its raw material. White clover honey has become staple and standard over practically the whole of the United States, and for most of Europe as well. Along with it, and closely resembling it, are the honeys derived from sweet clover and alfalfa.

But honey gourmets from various sections set up local favorite varieties as superior to the clover product. Usually such preferences are based on a fragrance or flavor of regionally dominant nectar plants, from which the honey derives a distinctive aroma or bouquet, no less characteristic than the bouquets of wines that enable connoisseurs to exalt the Moselle valley, or the hills of Burgundy, or the islands of the Aegean, according to their several preferences.

No one who has ever tasted the orange-blossom honey of Florida is likely to forget it. Yet from the opposite corner of the country may come a claim that it is not to be compared with the apple-blossom honey of the Pacific Northwest. Californians have their orange-blossom sweet, too, but must divide their allegiance between this and the rich honey from the white sage and ceanothus of their foothills.

In the Ohio Valley and the Southeast as well as over a considerable part of the Middle Atlantic region, three forest trees yield a considerable part of the honey crop: linden or basswood, tulip poplar, and black locust. These honeys all have their devoted followers among the sweet-toothed population.

But those who have, with dripping tongues, followed the Trail of the Bee, over the whole American map, sipping from her many combs as she sips from many flowers, would probably cast a majority vote in favor of a honey known in the Southern Appalachians and apparently not elsewhere: sourwood honey. He who has known the nectar of that unpromisingly named tree knows he has tasted perfection. For his tongue there are no more worlds to conquer.

(Reprint from SNL, Oct 15, 1938.)

Science News Letter, September 24, 1949

MEDICINE

Cancer in Mentally Ill

➤ MENTAL patients are less likely to have cancer than are other persons.

Figures on the cause of death in Chicago State Hospital show that in 1935-37 cancer was the cause of only 2.5% of all deaths in this institution. Ten years later, 1945-47 the rate had gone up, but only to 4.5%. For the general population, cancer deaths account for from 10% to 12% of the total.

In spite of the fact that the rate of admissions to the hospital had increased in 1945-47 over the rate for the 10 years before, the number of deaths had not increased and the death rate was actually lower, Dr. Herman Josephy, of Chicago, said in reporting the figures to the AMERICAN JOURNAL OF PSYCHIATRY (Sept.).

There were more deaths of old age patients in the more recent period, but this was because of the increased influx of senile patients.

Many of these old people die just about as soon as they reach the hospital, Dr. Josephy found. About 20% of those in their 70's are dead within one month of admission. About 25% of the octogenarians have the same fate.

In fact, out of every 100 seniles admitted in January and February of a year, only 60 are still alive when June rolls around.

"It seems justified to ask," comments Dr. Josephy, "whether these patients (who, of course, are senile psychotics) could not have died at home as well as in the hospital. It is very likely that they did not benefit from the transport from home to the Psychopathic Hospital and from there to the State Hospital."

On the other hand, there are quite a number of senile patients who survive for several years in the hospital. A few patients admitted as octogenarians survived for more than six years and died in the second half of their nineties.

Deaths from exhaustion in the course of acute schizophrenia have markedly decreased, Dr. Josephy reported. The same is true, he said, for deaths from general paresis. Delirium tremens has disappeared as a cause of death, at least from Chicago State Hospital.

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Books of the Week

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ADULT EDUCATION ACTIVITIES OF THE PUBLIC SCHOOLS: Report of a Survey, 1947-48—Federal Security Agency: Office of Education—*Gov't Printing Office*, 21 p., illus., paper, 15 cents. This survey answers major aspects of the question: What is now going on in adult education under public school auspices?

ALLOY STEELS, CAST IRON AND NON-FERROUS METALS—F. Johnson—*Chemical Publishing Co.*, 227 p., illus., $5.00. A technical work for those who are interested in processing steel and various alloys.

APPLIED BIOPHYSICS—N. Howard-Jones—*Chemical Publishing Company*, 293 p., illus., $6.75. Seventeen authorities write on the origin in biology and physics of diagnostic and therapeutic procedures used in medicine and surgery.

BASIC ELECTRONICS—Royce G. Kloeffler and Maurice W. Horrell—*Wiley*, 435 p., illus., $5.00. Fundamentals of electronics in concensed form. For the person who already has a knowledge of elementary physics.

HOUSEHOLD EQUIPMENT—Louise J. Peet and Lenore Sater Thye—*Wiley*, 3rd ed., 418 p., illus., $5.00. The material is completely reworked in this reference book for homemakers, students, and home economists.

PRINCIPLES OF ORGANIC CHEMISTRY—James English, Jr. and Harold G. Cassidy—*McGraw-Hill*, 512 p., illus., $5.00. An elementary text designed for chemistry majors taking a full year's course.

STRENGTH OF MATERIALS—Gerner A. Olsen—*Prentice-Hall*, 442 p., illus., $5.70. A text designed chiefly for courses where calculus is not required.

THE STUDY OF ROCKS—S. J. Shand—*Murby (Macmillan)*, 2nd rev. ed., 236 p., illus., $2.50. For the advanced student.

TITANIUM: Its Occurrence, Chemistry, and Technology—Jelks Barksdale—*Ronald*, 591 p., illus., $10.00. A working reference volume with an ample bibliography.

A YEAR BOOK OF RAILROAD INFORMATION 1949 EDITION—*Eastern Railroad Presidents Conference Committee on Public Relations*, 96 p., illus., paper, free of charge upon request to publisher, 143 Liberty Street, New York 6, New York. A large amount of statistical data.

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MEDICINE

Detecting Ills by Sound

➤ HIGH-PITCHED sound waves may be able to detect flaws in the body just as they detect flaws in metal.

Ultrasonics, sound waves pitched above the range of the human ear, is being explored for its diagnostic and treatment possibilities in studies with animals at the Mayo Foundation, Dr. Paul A. Nelson of the Foundation told the American Congress of Physical Medicine meeting in Cincinnati, Ohio. Its application to disease must wait upon the discovery of the effects of ultrasonic radiation upon the physiology of the body.

Research on dogs has revealed that the sound waves generate heat which is confined to the area at which the sound waves are directed. Dogs' legs exposed for two minutes to this radiation showed a temperature rise in the bone marrow of 6.4 degrees Fahrenheit, in the bone cortex of 4.9 degrees, in the muscle of 2.6 degrees, and 1.95 degrees in the subcutaneous tissue.

Research is also being made into the effects of ultrasonics on malignant tumors in animals. Dr. Nelson said that so far no conclusions have been made as to its possibilities in this field.

However, he did point out that there is a chance that ultrasonics may be perfected so that tumors in animals and humans may be detected by this method.

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INVENTION

This Is Hot Stuff For Snow Time

➤ WITH winter ahead, and not too far away, an easy method of snow removal from city streets, for which a government patent was recently issued, is of interest. It uses a truck with a "melting pot" into which the snow is shoveled, to be immediately turned into water.

The melting pot is a tank or trough-like device, suspended within the truck body. Spanning the open top of the tank, a little below its sides, is a removable box-like heater or burner assembly. A gaseous or liquid container to the front of the tank supplies fuel to the burners. The water formed drains to the side, then to the bottom of the tank and out, if desired, to the gutter of the street.

The upper surface of the heater floor contains many upward-pointing sharp spikes. These break up lumps of snow or ice shoveled in, making melting easier. Hand shovelers are not necessarily required; modern mechanical snow loaders may be used. The recipient of the patent, number 2,481,199, was Alex Cayas, Glendale, Calif.

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• New Machines and Gadgets •

For addresses where you can get more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., Washington 6, D. C. and ask for Gadget Bulletin 484. To receive this Gadget Bulletin without special request each week, remit $1.50 for one year's subscription.

⚙ *SHAMPOOING machine for upholstery is an improved type said to be lighter in weight, more efficient, faster and better-looking than previous models. While the entire machine weighs 40 pounds, the cleaning head, the part held in the hand by the user, is made of magnesium and weighs only three pounds.*

Science News Letter, September 24, 1949

⚙ *MAGNETIC FLY-BOX will hold 36 fishing flies, any one of which can be brought to the front of the device by merely turning a dial. It makes use of a permanent rotating magnet assembly. It has a clear plastic top which permits the user to see all the flies in the box without opening the cover.*

Science News Letter, September 24, 1949

⚙ *CHEMICAL WORM DIGGER, to eliminate the labor of spading for fish bait, is a white powder which is dusted lightly over an area containing fresh earthworm holes, then thoroughly sprinkled with water. The worms come completely out of the holes for easy picking; the chemical does not injure the grass.*

Science News Letter, September 24, 1949

⚙ *HAMMER TOYS, shown in the picture, are made of tough plastic material*

and are designed for youngsters who have reached the pounding age. The peg table has six non-removable pegs that can be driven in separately, then released by a blow on the center post.

Science News Letter, September 24, 1949

⚙ *SOLDERING device automatically feeds solder to the tip of the iron. The feeding attachment will fit any standard electric soldering iron from 75 to 250 watts. Slight pressure on a trigger on the attachment, made by one finger of the holding hand, brings the solder to the iron tip as needed.*

Science News Letter, September 24, 1949

⚙ *CARPENTER'S LEVEL for a blind workman has been developed by the American Foundation for the Blind. It consists essentially of a highly polished steel ball rolling in a highly polished brass angle section, and is read from a dial at one end of the level.*

Science News Letter, September 24, 1949

⚙ *SPRAY-GUN, for paint or any sprayable liquid, is a self-contained, 17-pound unit with compressor, motor and gun within a single streamlined housing. This improved sprayer, which operates on household current, will apply one quart of paint in four minutes, operating with about 50 pounds air pressure.*

Science News Letter, September 24, 1949

⚙ *PLASTIC WASH bottle for the laboratory will eject a strong, easily controlled stream of fluid when lightly squeezed. This non-breakable Polyethylene bottle is for use with distilled water or commonly used laboratory acid and alkaline solutions.*

Science News Letter, September 24, 1949

Do You Know?

Bromine is becoming a widely-used disinfectant for swimming pools.

Only about 200 of the once-numerous *Asiatic lions* are thought now to be alive.

A six-inch *door key*, recently discovered in ruins of an English abbey, is coated with tin and is estimated to be 700 years old.

A *five-bladed propeller*, recently tested on a U. S. Coast Guard cutter, gave practically no hull vibration at any speed; the ordinary propeller has three blades.

In seeding burned-over rough land by airplane, what is called *"pelleted seed"* is sometimes used; it is seed mixed with soil to form small marbles which, on disintegration, leave soil-covered seeds.

The element *fluorine* was first isolated by the French scientist Henri Moissan; in 1886 he succeeded in obtaining it by the electrolysis of a solution of potassium fluoride dissolved in liquid hydrofluoric acid.